Chemical & Engineering NEWS

Law of the Sea treaty goes ahead without U.S.
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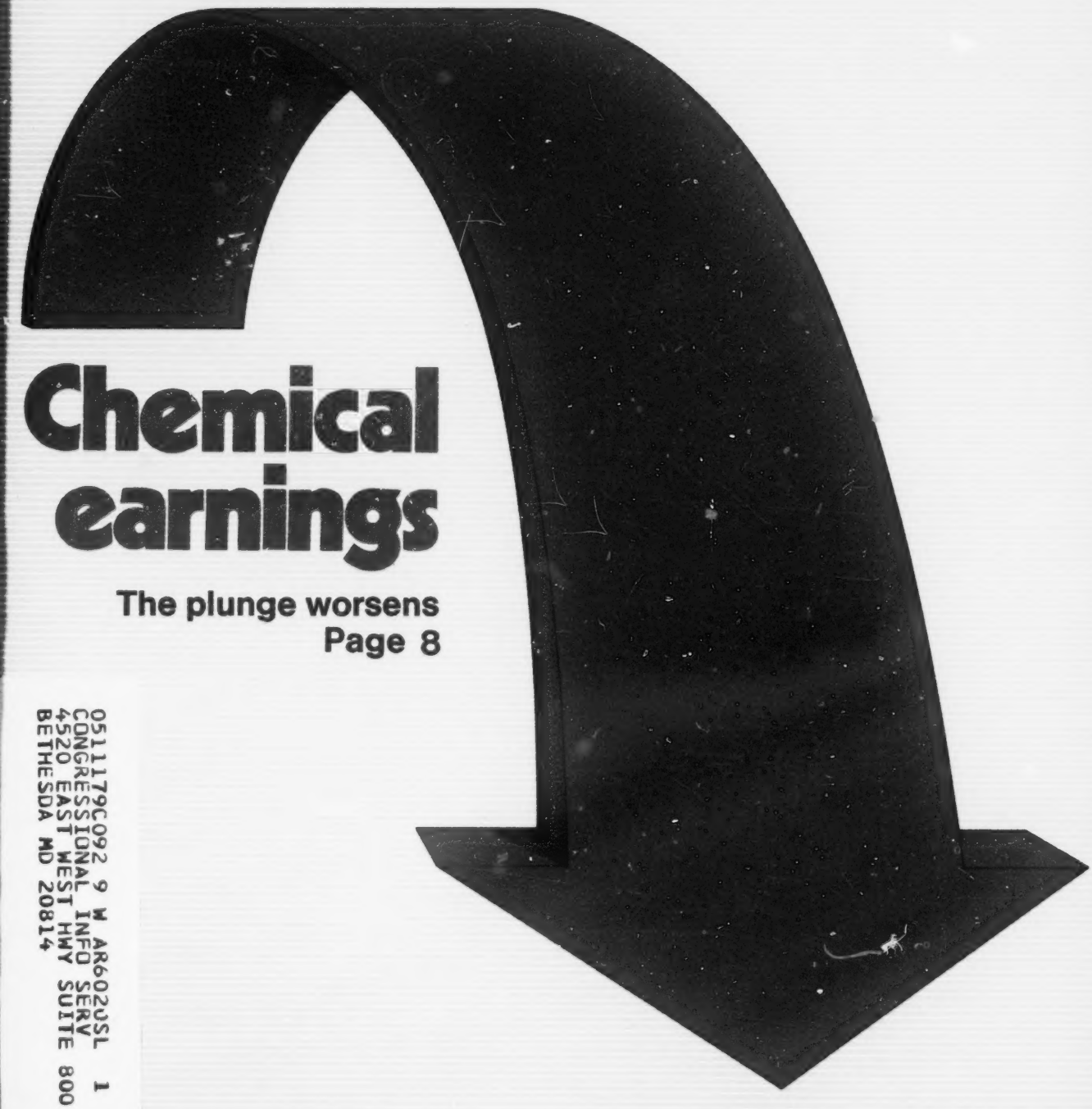

Chemical earnings

The plunge worsens
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Chemical earnings fall drastically

Combined profits at 40 largest basic chemical firms fell 33% in the first quarter on a sales decline of 5.6%; earnings at oil and diversified companies also plunged

William J. Storck, C&EN, New York, and William F. Fallwell, C&EN, Washington

Chemicals started 1982 not with a bang but with a bust. Chemical earnings were off across the board—at basic chemical companies, at oil companies with petrochemical operations, and at diversified companies that have large chemical businesses. It was a shellacking.

Thus, the drop in chemical earnings in the fourth quarter of 1981 (C&EN, Feb. 15, page 16) was only a prelude to an even greater drop in the first quarter this year.

Basic chemical companies (firms with more than 40% of their sales in chemicals and with chemicals making up the greatest portion of their sales) showed just how dismal business was in the first quarter.

Combined earnings at the 40 largest chemical companies declined 33.3% from the first quarter last year to about $958 million. And even sales fell—a rare event; for the 40 companies, they dropped 5.6% to $20.9 billion from the same period in 1981.

As a result, the combined profit margin for the group was 4.6% in the first quarter this year, down sharply from 6.5% in the first quarter last year.

These data are consistent for the two years, although the lineup of chemical companies has changed markedly this year. This year, for the first time, Du Pont is not on the list of basic chemical companies. After its acquisition of Conoco last year, its chemical operations weigh much less in the company total. Chemicals at Du Pont made up only 35% of sales in the first quarter as against 54% for petroleum and coal. Therefore, Du Pont has been transferred to the list of diversified chemical producers.

Diamond Shamrock also made the same switch because its chemical sales percentage has fallen. Mallinckrodt also is off the basic chemical companies list because it was acquired by Avon.

However, three new companies have joined the basic chemical list—FMC, National Distillers, and GAF.

There was once again something of a split this quarter in results of large basic chemical companies and those of smaller, more specialized firms. One might say that the larger firms performed slightly less poorly than the medium-sized companies.

Combined sales at the 20 larger basic companies dropped 5.7% to $18.6 billion in the first quarter. At the same time, combined earnings for this group dropped 32.6% to $853 million. Profit margins fell to 4.6% from 6.4% in the comparable period last year.

Among the 19 smaller basic companies that have reported thus far, the sales drop was not so bad: 4.5% to $2.29 billion. However, their earnings decline was worse: down 38.0% to $105.0 million.

As a result, profit margins among the more specialized firms also fell farther, enough so that their profitability is the same as the 20 big chemical producers. Profit margins for the smaller group dropped to 4.6% in the first quarter, compared to 7.1% in the first three months of 1981—a shocking change of fortunes for this usually favored group.

However, the drop in earnings was confined to a narrower group of companies within the smaller-sized firms. All 20 of the larger chemical companies had either earnings declines or deficits, whereas just 11 of the 19 smaller firms saw earnings give way.

Two of the hardest hit smaller firms are both minerals and fertilizer companies, reflecting the deepening woes in those industries. First Mississippi earnings declined 59% to $1.2 million in the quarter. And Freeport-McMoRan earnings dropped 42% to $26.5 million.

The deepening problems of the agricultural economy also had their

Chemical industry leaders for first-quarter 1982

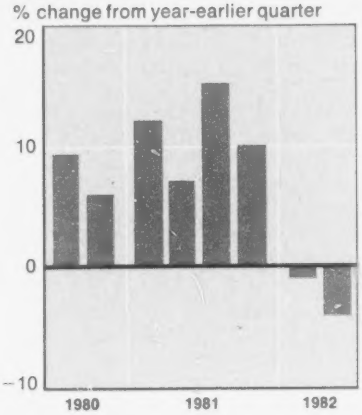
Sales			Earnings[a]			Profitability		
Rank		$ Millions	Rank 1981		$ Millions	Rank 1981		Earnings as % of sales	Rank 1981
1	Dow Chemical	$2781.0	1	Monsanto	$147.5	3	Freeport-McMoRan	13.6%	1
2	Union Carbide	2312.1	2	Dow Chemical	97.0	1	Stauffer Chemical	13.0	3
3	Monsanto	1731.7	3	Union Carbide	90.8	2	Petrolite	10.3	6
4	Allied	1614.0	4	Stauffer Chemical	82.1	4	Nalco Chemical	9.7	4
5	W. R. Grace	1463.2	5	W. R. Grace	79.1	6	Great Lakes Chemical	9.4	2
6	Celanese	850.0	6	Allied	63.0	5	Chemed	8.7	10
7	American Cyanamid	845.5	7	American Cyanamid	38.0	9	Monsanto	8.5	7
8	FMC	844.6	8	FMC	32.5	12	Lubrizol	7.7	5
9	PPG Industries	752.2	9	Air Products	29.3	15	Liquid Air	7.5	9
10	B. F. Goodrich	728.6	10	National Distillers	28.4	16	Air Products	7.3	8

a After taxes. **Note:** For 40 chemical companies listed on page 10.

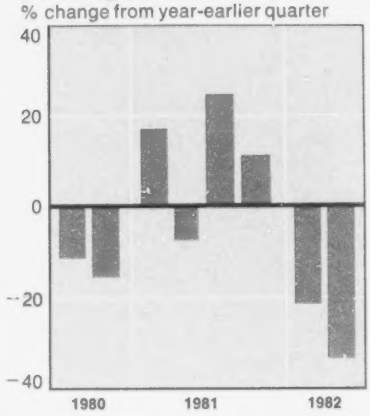
Chemical industry 1982 first-quarter results

- Sales fell 4%
- Earnings plummeted 33%
- Profit margins sank
- Production declined 10%
- Prices rose 6%

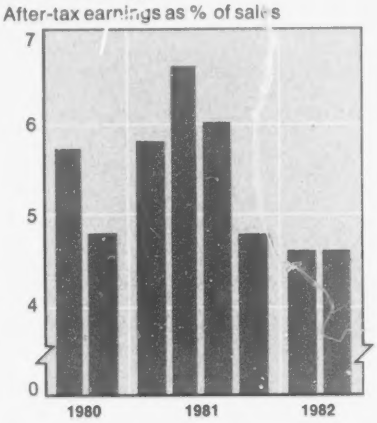
Sales
% change from year-earlier quarter



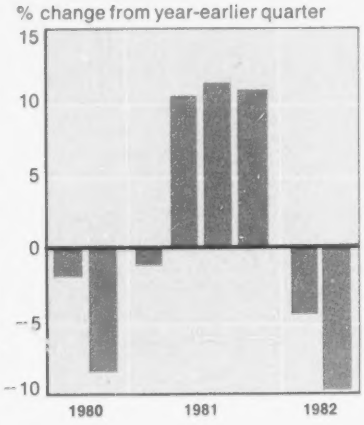
Earnings
% change from year-earlier quarter



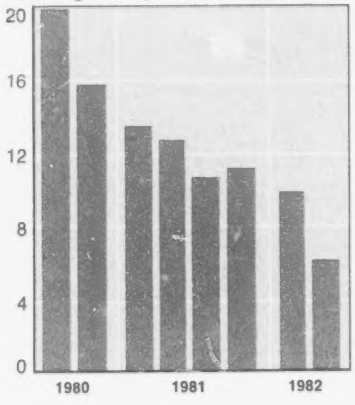
Profit margins
After-tax earnings as % of sales



Production
% change from year-earlier quarter

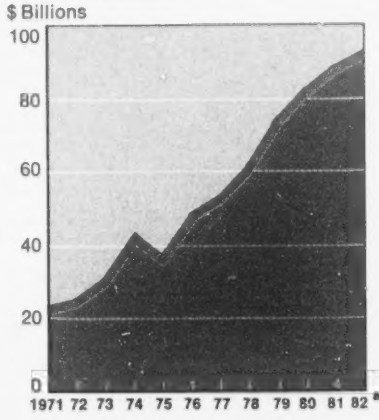


Prices
% change from year-earlier quarter

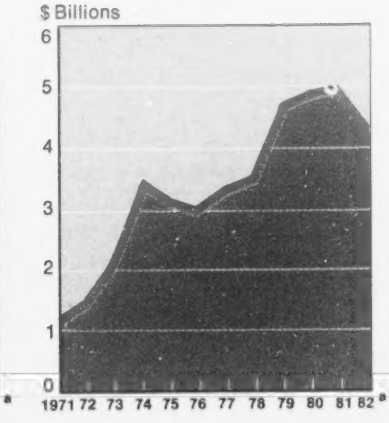


Sales in 1982 will rise about 5%, while earnings drop 15%, driving chemical profitability down to 4.6%

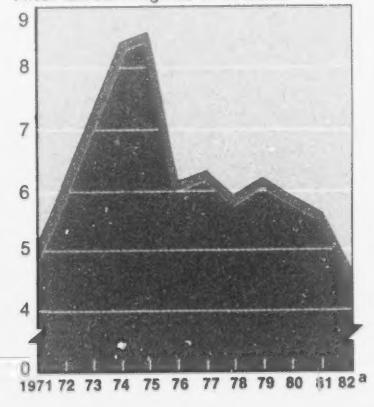
Annual sales
$ Billions



Annual earnings
$ Billions



Annual profit margins
After-tax earnings as % of sales



a C&EN estimates. **Note:** All sales, earnings, and profit margin data are based on the combined performance of the 40 largest chemical makers listed on page 10.

Earnings fell at all but eight chemical companies in first quarter

	FIRST-QUARTER 1982						12-MONTH RUNNING DATA			
	Sales	Earnings	Change from 1981		Profit margin[a]		Change from 1981		Profit margin[a]	
	($ millions)		Sales	Earnings	1982	1981	Sales	Earnings	1982	1981
Dow Chemical[d]	$ 2,781.0	$ 97.0	−4%	−46%	3.5%	6.2%	10%	−18%	4.5%	6.1%
Union Carbide	2,312.1	90.8	−12	−49	3.9	6.7	−2	0	6.2	6.0
Monsanto	1,731.7	147.5	−9	−16	8.5	9.3	2	31	5.1	4.0
Allied	1,614.0	63.0	2	−25	3.9	5.3	13	1	5.0	5.6
W. R. Grace[e]	1,463.2	79.1	−2	−5	5.4	5.6	4	7	5.0	4.8
Celanese	850.0	20.0	−7	−44	4.0	2.4	8	5	3.5	3.6
American Cyanamid	845.5	38.0	−5	−16	4.5	5.1	3	12	5.2	4.8
FMC	844.6	32.5	4	−22	3.8	5.1	6	18	4.9	4.4
PPG Industries[f]	752.2	16.5	−7	−70	2.2	6.8	4	−15	5.2	6.4
B. F. Goodrich[g]	728.6	−18.4	−7	def	def	1.2	1	39	2.2	1.6
Hercules	640.0	21.9	−4	−42	3.4	5.6	7	10	5.0	4.9
Stauffer Chemical	630.3	82.1	0	−7	13.0	14.0	−1	3	8.3	8.0
Olin	499.6	22.0	−4	−23	4.4	5.4	4	8	4.4	4.2
Rohm & Haas[h]	475.3	16.0	−1	−42	3.4	6.6	6	−9	4.5	5.3
National Distillers	464.4	28.4	−9	−16	5.3	6.7	2	30	6.6	5.2
International Minerals	419.2	23.5	−22	−44	5.6	7.9	−12	−27	6.7	8.1
Ethyl Corp.	402.7	17.1	−5	−19	4.2	5.0	0	−2	5.0	5.2
Air Products	399.1	29.3	−3	−21	7.3	8.9	4	1	7.7	7.9
Williams Cos.	393.9	5.9	−21	−89	1.5	10.4	−10	−62	3.1	7.2
Witco Chemical[i]	334.0	3.9	3	−34	1.2	1.8	7	1	2.8	3.0
Akzona	290.5	−2.7	−6	def	def	1.1	10	170	0.5	0.2
Pennwalt	246.7	5.3	−8	−46	2.1	3.7	−15	−13	3.4	3.3
Reichhold Chemicals	213.9	3.3	−11	−28	1.5	1.9	4	3	1.8	1.8
Thiokol	202.8	9.0	18	8	4.4	4.8	8	28	5.0	4.2
Lubrizol	201.8	15.6	−10	−35	7.7	10.8	−7	−13	10.4	11.0
Freeport-McMoRan	194.9	26.5	−13	−42	13.6	20.3	11	−11	16.9	21.1
Nalco Chemical	158.7	15.4	1	−20	9.7	12.2	7	3	11.6	12.0
GAF	139.5	−3.8	−21	def	def	1.8	−8	def	def	1.0
Liquid Air	103.5	7.8	−6	−17	7.5	8.6	3	−2	7.1	7.4
Petrolite	82.4	8.5	16	21	10.3	9.9	16	9	9.5	10.1
H. B. Fuller[j]	72.7	1.1	−7	−61	1.5	3.6	10	5	3.6	3.8
Chemed[k]	59.9	5.2	2	4	8.7	8.5	nc	nc	nc	nc
Loctite	54.8	3.3	−3	10	6.0	5.3	4	0	6.3	6.6
Crompton & Knowles	54.1	0.8	−10	−56	1.5	3.0	−1	−1	3.2	3.2
Stepan Chemical[l]	54.1	1.0	9	−17	1.8	2.4	24	47	3.0	2.6
First Mississippi	51.7	1.2	13	−59	2.3	6.3	7	14	7.3	6.8
Great Lakes Chemical	42.6	4.0	22	−26	9.4	15.2	24	−12	10.6	14.8
Essex	37.8	1.5	−5	60	4.0	2.3	8	54	5.2	3.6
Philip A. Hunt	30.1	2.0	15	91	6.6	4.0	9	def	2.9	def
International Flavors[m]	—	—	—	—	—	12.3	—	—	—	13.4
Total 20 largest companies	**$18,580.8**	**$852.9**	**−5.7%**	**−32.6%**	**4.6%**	**6.4%**	**4%**	**−2%**	**5.0%**	**5.3%**
Total 19 other companies	**$ 2,292.5**	**$105.0**	**−4.5%**	**−38.0%**	**4.6%**	**7.1%**	**3%**	**−9%**	**5.4%**	**6.1%**
GRAND TOTAL	**$20,873.3**	**$957.1**	**−5.6%**	**−33.3%**	**4.6%**	**6.5%**	**4%**	**−2%**	**5.1%**	**5.4%**

a After-tax income as a percentage of sales. b Fully diluted before nonrecurring items and extraordinary charges for operations. c As of April 30. d Excludes $57 million nonrecurring gain in first-quarter 1982. e Excludes $65.1 million nonrecurring gain in first-quarter 1982. f Excludes $7.6 million nonrecurring gain in first-quarter 1982. g Excludes $18.0 million extraordinary gain in first-quarter 1981. h Excludes $4.4 million nonrecurring gain in first-quarter 1981. i Excludes $3.1 million nonrecurring gain in first-quarter 1982. j Excludes $0.9 million extraordinary

effect on International Minerals & Chemical, which ranks as a larger producer. IMC had a 44% drop in earnings in the first quarter (third fiscal quarter) to $23.5 million. And IMC had one of the largest sales declines among the companies reporting, dropping 22% to $419 million.

Williams Cos., another large fertilizer producer, had the largest drop of any company on the list. Williams' earnings fell 89% to $5.9 million, and its sales dropped 21% to $394 million. As a result, its profit margin was almost wiped out, reduced to 1.5% from a lofty 10.4% in first-quarter 1981.

The basic chemical firms had plenty of company in the first-quarter profits storm. With a few lucky exceptions, some of them influenced by creative accounting, chemical producers of every stripe had a lot to complain about.

For oil companies, the ongoing woes of petrochemicals didn't stick out so much for once, matched this time by problems in much of the oil production chain. A combination of worldwide recession and falling oil prices left most oil companies not only with severe earnings drops but with sales declines, something the

STOCK MARKET DATA[c]

Earnings per share[b] 1st qtr	Earnings per share[b] Recent 12 months	Stock price April 30	Stock price Recent 12 months High	Stock price Recent 12 months Low	Price-earnings ratio April 30	Annual indicated dividend	Dividend yield, % of price
$0.50	$2.80	$22 3/4	$36 5/8	$20	9	$1.80	7.9%
1.32	8.24	47 1/2	61 1/4	42 3/8	6	3.40	7.2
3.71	8.68	66 1/4	87 1/2	59 1/2	6	4.00	6.0
1.38	8.08	34	59 7/8	32	4	2.40	7.1
1.88	6.88	38 1/4	53	34 3/8	6	2.60	6.8
1.21	7.39	58 3/8	69 1/4	50 1/4	7	4.00	6.9
0.79	3.92	29 1/8	36 1/2	24 3/8	7	1.75	6.0
0.90	4.63	27 1/4	34 5/8	23 1/8	7	1.60	5.9
0.49	5.26	34 1/8	55 1/4	29	6	2.36	6.9
−1.18	2.62	20 1/4	27 1/8	18 1/2	6	1.56	7.7
0.50	3.06	21	26 1/4	17 7/8	8	1.32	6.3
1.86	3.27	23	27	17 3/4	7	1.44	6.3
0.93	3.63	21 5/8	27	18 1/2	6	1.20	5.5
1.24	6.63	55 3/4	71 3/4	46 3/4	8	2.80	5.0
0.81	3.80	22 1/2	29 3/8	21 1/8	6	2.20	9.8
0.89	4.49	31 3/8	49	25 3/4	5	2.60	8.3
0.86	4.40	19 1/2	33	18 1/8	4	1.50	7.7
1.03	3.17	35 1/4	46	31	8	0.80	2.3
0.20	2.14	20	35 3/8	18	9	1.20	6.0
0.72	4.22	23 3/8	31 1/2	21 1/8	6	1.80	7.7
−0.22	0.51	9 3/4	15 1/4	9 1/4	21	0.80	8.2
0.52	3.33	26 1/2	32 1/2	23 5/8	6	2.20	8.3
0.38	1.95	12 3/8	15 3/4	10	7	0.48	3.9
0.77	3.24	35 5/8	39	26 1/2	11	1.10	3.1
0.40	2.14	21 3/8	31 5/8	17 1/8	10	1.08	5.1
0.38	2.02	16 3/8	39 3/8	15 1/8	8	0.60	3.7
0.77	3.86	45 1/2	58 1/4	41	11	2.24	4.9
−0.32	−2.04	13	16 3/8	8 5/8	—	0.80	6.2
0.64	2.62	18	27 1/2	16 1/4	7	1.60	8.9
0.72	2.46	29 3/4	43 1/4	24 3/4	12	1.00	3.4
0.23	2.58	14 1/2	26 1/2	14 1/4	6	0.52	3.6
0.31	1.20	21 1/2	25 1/8	16 7/8	18	1.25	5.8
0.33	1.39	23	28	18 1/8	17	0.56	2.4
0.20	2.18	13 7/8	18 3/4	13 1/2	6	1.04	7.5
0.27	1.71	12 3/8	21 3/8	11 1/2	7	0.56	4.5
0.06	1.15	9 1/2	23 3/8	8 7/8	8	0.24	2.5
0.55	2.31	30 7/8	58 1/2	27 7/8	13	0.52	1.7
0.52	2.76	20	20 1/4	14 3/4	7	0.80	4.0
0.35	0.99	10 1/8	11 1/4	8 3/8	12	0.40	4.0
—	—	18 3/4	22 3/8	17 3/8	10	1.00	5.3

gain in first-quarter 1982. **k** Chemed has restructured and some historical data are not yet restated to be comparable. Earnings per share are estimated. **l** Excludes $0.7 million nonrecurring charge in first-quarter 1981. **m** Not all information available at press time. **nc** = not comparable; **def** = deficit.

energy world hasn't seen in at least a decade. Exceptions were firms like Standard Oil (Ind.), which could take advantage of cheaper oil in its refineries. Two other big gas sellers, El Paso and Internorth, also would have had profits increases, but any potential gains were smothered by the rugged market influence from petrochemicals and natural gas liquids.

Among the more diversified chemical producers, chemical profit centers got some of the worst notices in first-quarter reports. For example, Borden's chairman, Eugene J. Sullivan, laid a "sharp drop" in chemical division income to "near-catastrophic" conditions in housing and auto markets and to higher natural gas costs. Upjohn's chemical areas operated at a loss with a 24% drop in sales. Esmark had a near disappear-

Ground rules for the C&EN earnings analysis

C&EN's quarterly report on financial performance of the U.S. chemical industry contains data from the 40 largest U.S. basic chemical companies and from 50 diversified companies, each with more than $200 million in annual chemical sales.

The 40 largest chemical firms included in the table on pages 10 and 11 produce 50 to 60% of chemicals sold in the U.S. To be included in this table a company must have at least 40% of its sales in chemicals, and its chemical operations must be the largest single portion of the company's operations. The table of nonchemical firms on pages 12 and 13 is divided into two groups: oil and gas companies specializing in basic petrochemicals, and major diversified firms with large chemical operations. In both cases, chemical sales are more than $200 million annually.

Also included is a state-of-the-industry page. These graphs give quarterly comparisons for the past two years on five specific measures for the 40 largest chemical firms, plus annual data for the past decade for the same group.

In referring to chemical sales, C&EN means those chemicals whose molecular composition has been changed in the course of manufacture. Hence, chemical sales include those of traditional categories of basic petrochemicals and inorganics, organic intermediates and inorganic compounds, polymers such as plastics and fibers, agricultural chemicals, and specialty derivatives. The list does not include companies whose primary business is formulating or fabricating products made from purchased process chemicals. By the government's Standard Industrial Classification code, the survey's chemicals would fall into SIC categories 281, 282, 286, 287, and, in part, 289.

In listing earnings, the survey gives after-tax income for continuing operations before nonrecurring items and extraordinary charges. Foreign currency translations are included. Earnings per share are given with full dilution.

In other definitions, profit margin is after-tax earnings as a percentage of net sales. The 12-month indicated dividend is the latest announced quarterly dividend multiplied by four with year-enders.

Twelve-month earnings per share are for the year ending with the latest quarter. Yield is the indicated annual dividend as a percentage of latest stock price. Shares outstanding are generally averages for the latest quarter.

Sales slip and earnings plummet at many diversified chemical producers

	Chemical sales as % of total sales	FIRST-QUARTER 1982						STOCK MARKET DATA			
		Total sales	Earnings	Change from 1981		Profit margin[a]		Earnings per share		Stock price	
		($ millions)		Sales	Earnings	1982	1981	1st qtr	Recent 12 months	April 30	12-Month high
OIL AND GAS COMPANIES											
Exxon	7%	$27,109.0	$1240.0	−11%	−23%	4.6%	5.3%	$1.43	$6.01	$28 1/4	$36
Mobil	3	16,439.0	326.0	−4	−49	2.0	3.7	0.77	4.99	21 3/4	32
Texaco	3	13,000.0	367.0	−16	−44	2.8	4.3	1.41	7.71	29 1/2	39 1/2
Standard Oil of California	3	10,020.0	230.0	−16	−65	2.3	5.6	0.67	5.68	29 7/8	46
Gulf Oil	8	7,538.0	267.0	−4	−12	3.5	3.8	1.44	6.26	30 7/8	41 3/8
Standard Oil (Ind.)	10	7,200.0	470.0	−9	25	6.5	4.8	1.60	6.60	42	64 1/8
Atlantic Richfield	8	6,427.2	385.4	−10	5	6.0	5.2	1.53	6.72	39 1/8	54 1/8
Shell Oil	16	4,842.0	345.0	−11	−4	7.1	6.7	1.12	5.46	35 3/8	49 1/4
Occidental Petroleum[b]	16	4,211.7	62.1	25	−76	1.5	7.6	0.41	4.96	19 3/8	31 1/4
Sun Co.	5	3,900.0	124.0	−2	3	3.2	3.0	1.01	5.19	34 1/2	48 3/4
Tenneco	10	3,844.0	129.0	1	−34	3.4	5.1	0.88	5.38	26 7/8	43 5/8
Phillips Petroleum	15	3,813.0	189.0	−10	−30	5.0	6.4	1.24	5.24	31 1/2	47 1/8
Getty Oil	2	3,124.6	163.9	−5	−29	5.2	7.0	2.01	9.63	49 3/4	79 3/4
Standard Oil (Ohio)	3	3,055.6	454.7	−4	−13	14.9	16.3	1.85	7.65	34 5/8	54 1/8
Union Oil	11	2,481.6	168.5	−7	9	6.8	5.8	0.97	4.50	33 3/4	45 5/8
Cities Service	3	2,277.4	53.3	4	−19	2.4	3.0	0.68	3.39	32 3/4	30 5/8
Internorth	10	1,452.8	106.6	27	−9	7.3	10.2	2.40	5.22	27 1/4	36 1/4
Kerr-McGee[c]	14	936.7	46.2	2	7	4.9	4.7	0.89	4.12	30 3/4	43 3/4
El Paso	15	934.0	21.2	3	−31	2.3	3.4	0.44	2.86	23 3/8	28 1/8
American Petrofina	13	575.2	16.0	−14	−21	2.8	3.0	1.48	6.48	62 1/2	63 1/4
DIVERSIFIED MANUFACTURERS											
Du Pont	35	8,289.0	250.0	2	−20	3.0	3.9	1.06	5.55	35 3/8	56
General Electric	4	6,020.0	377.0	−1	5	6.3	5.9	1.66	7.35	64 1/8	69 7/8
U.S. Steel[b]	10	5,002.7	79.9	47	−71	1.6	8.0	0.86	5.11	24 5/8	34 7/8
Procter & Gamble	4	3,094.0	198.0	5	15	6.4	5.8	2.39	9.14	85 3/8	87 5/8
Dart & Kraft	11	2,439.4	96.9	2	−6	4.0	4.3	1.77	7.33	51 7/8	54 3/4
Eastman Kodak	23	2,247.6	181.3	−3	−27	8.1	10.8	1.12	7.24	71	82 3/4
Beatrice Foods	5	2,227.6	74.0	0	5	3.3	3.2	0.68	2.87	19 3/8	23 1/2
Goodyear Tire	12	2,147.3	45.6	−3	−20	2.1	2.6	0.63	3.21	23 1/8	23 5/8
3M	15	1,666.0	152.4	5	−10	9.1	10.7	1.30	5.60	54 7/8	63 3/4
Aluminum Co. of America[c]	11	1,212.8	23.9	−8	−76	2.0	7.7	0.31	2.74	25	36
Georgia-Pacific[c]	14	1,199.0	25.0	−11	−52	2.1	3.9	0.23	1.23	16 1/2	30 5/8
Borden[c]	32	928.3	17.2	−12	−47	1.9	3.1	0.57	4.72	33 1/4	34 1/4
Eli Lilly	18	863.2	135.6	6	9	15.7	15.3	1.78	5.07	62 3/4	68 1/2
Pfizer	13	808.4	88.2	0	18	10.9	9.2	1.14	3.77	55 7/8	59 1/4
Northwest Industries	6	794.4	94.6	13	94	11.9	6.9	4.10	11.04	66 7/8	80 1/2
Diamond Shamrock	34	791.1	29.1	−9	−52	3.7	7.0	0.47	3.18	21 1/2	39 5/8
Martin Marietta	14	748.5	15.8	4	−60	2.1	5.5	0.44	4.77	29 1/8	51 1/8
Merck	23	743.6	109.8	3	−2	14.8	15.4	1.48	5.34	76 1/2	103
Kaiser Aluminum	17	733.8	−24.9	−12	def	def	8.2	−0.56	0.90	12 5/8	26 1/4
Esmark	18	725.2	13.5	7	10	1.9	1.8	1.01	7.63	45 5/8	55 1/2
NL Industries	23	665.2	93.5	25	61	14.0	10.9	1.39	5.14	24 7/8	48 5/8
Borg-Warner	24	635.4	36.3	−6	5	5.7	5.1	0.85	4.05	28 1/2	28 7/8
Uniroyal[c]	25	485.1	1.2	−10	−90	0.2	2.1	0.04	1.33	7 7/8	10 3/8
Upjohn	17	460.2	42.9	−4	−24	9.3	11.8	1.42	5.57	46 1/2	67 3/4
General Tire[c]	19	456.6	−3.8	−8	def	def	0.6	−0.15	2.71	18 1/2	29 1/2

a After-tax income as percentage of sales. b Earnings include nonrecurring items. c Excludes major nonrecurring items: Kerr-McGee—$17 million charge first-quarter 1982; Aluminum Co. of America—$19.9 million in first-quarter 1982; Georgia-Pacific—$135 million in first-quarter 1982; Borden—$17.6 million in first-quarter 1982; Uniroyal—$18.0 million in first-quarter 1982; General Tire—$30.8 million charge in first-quarter 1982 and $4.4 million charge in first-quarter 1981.

STOCK MARKET DATA

Stock price 12-Month low	Price-earnings ratio April 30	Annual indicated dividend April 30	Dividend yield % of price
27 3/8	5	$3.00	10.6%
20 3/4	4	2.00	9.2
29 1/4	4	3.00	10.2
28 3/4	5	2.40	8.0
27 3/4	5	2.80	9.1
34 1/8	6	2.80	6.7
33 1/4	6	2.40	6.1
27 1/8	6	1.80	5.1
18 5/8	4	2.50	12.9
29	7	2.30	6.7
24 7/8	5	2.60	9.7
27	6	2.20	7.0
41 1/4	5	2.40	4.8
29 1/8	5	2.60	7.5
27 1/8	7	1.00	3.0
20 1/4	10	1.60	4.9
24	5	2.12	7.8
26 3/4	7	1.10	3.6
20 1/4	8	1.48	6.3
41 1/2	10	3.20	5.1
31	6	2.40	6.8
51 1/8	9	3.20	5.0
22	5	2.00	8.1
57 3/8	9	4.20	4.9
44 5/8	7	3.60	6.9
60 5/8	10	3.00	4.2
16 3/4	7	1.50	7.7
15 7/8	7	1.40	6.1
48	10	3.20	5.8
21 7/8	9	1.80	7.2
15 3/8	13	1.20	7.3
26 1/4	7	2.22	6.7
45 1/4	12	2.60	4.1
40	15	1.84	3.3
43 3/4	6	2.68	4.0
19 1/2	7	1.76	8.2
26 1/8	6	1.92	6.6
70 3/8	14	2.80	3.7
12	14	0.60	4.8
30 3/8	6	1.84	4.0
21 1/8	5	1.00	4.0
21 1/8	7	1.40	4.9
5 7/8	6	0	0
42 1/8	8	2.28	4.9
18 3/8	7	1.50	8.1

Petrochemical earnings deepen the trough

The sad state of petrochemicals hardly needs belaboring. Their profits collapse has been going on without a break since second-quarter 1980. Only once, in third-quarter 1981, did petrochemicals nearly match their previous year's performance.

The dismal data for first-quarter 1982 show little break in the pattern, except that low raw material prices finally began to benefit producers like Shell Oil buying large lots on the outside. For most, however, the effect of the monstrous price discounts and idled plant capacity this winter has been terrible.

For five of the largest chemical-producing oil companies giving after-tax data on chemicals, the combined profits drop in the first quarter was another 38%. This follows a 50% tumble in last year's first quarter. In other words, petrochemical earnings now are down about 70% from their last good quarter at the start of 1980.

A few more specific figures from companies show how bad the business drop has been. At number-one petrochemical producer Exxon, chairman Clifton C. Garvin Jr. says that chemicals had a physical sales volume drop of 23% in the U.S. and 13% abroad from a year earlier. That's a shocking loss of product flow. It was even worse in some chemical areas at Atlantic Richfield, which reports a sales poundage drop of 34% in aromatics, 55% in olefins, and 23% in polymers in the first quarter.

Translating this volume drop into dollars, companies have come up with a lot less sales and profits than a year ago and show traces of red ink. For example, Mobil's merchant chemical sales fell 8% in the first-quarter from first-quarter 1981, and Exxon's chemical product revenue (including transfers to its petroleum affiliates) fell 17%.

In short, petrochemicals remain in the grip of a tremendous recession, much worse than for the chemical industry as a whole. Unfortunately, there is no relief in sight.

$ Millions	First-quarter after-tax earnings 1982	1981	% change
Exxon	$31.0	$ 61.0	−49%
Mobil	13.0	26.0	−50
Shell Oil	10.0	6.0	67
Standard Oil (Ind.)	27.0	39.0	−31
Texaco	15.0	22.0	−34
TOTAL	$96.0	$154.0	−38%

ance of operating profits in Estech, its chemicals segment. At Diamond Shamrock, chairman William H. Bricker reports both a physical volume and profit margin decline in chemicals. Especially hard hit were industrial and electrolytic (chlor-alkali) chemicals. Diamond's more specialized chemicals did better.

Amid such widespread gloom, it's worth recording the few brighter notes. For instance, NL Industries, which can't seem to join the recession, had a 13% gain in chemical operating profits in the first quarter from a year earlier. NL's overall eye-popping profits gains came from its oil-field business, the same source as similar gains at Northwest Industries.

And at beleaguered Georgia-Pacific, the forest products giant, there's even a good word for chemicals. Says chairman Robert E. Flowerree, "We noticed a good pickup in polyvinyl chloride resin sales in March after a long period of softness. This followed a similar increase for thermosetting resins that started in February, which was helped by new industrial lines we acquired last year."

Is Georgia-Pacific onto something? Most companies think not, at least for the second quarter. Du Pont chairman Edward G. Jefferson already has said that the second quarter looks even more difficult than the first (C&EN, May 10, page 11).

Eastman Kodak chairman Walter A. Fallon has a similar comment: "Many of the pressures that caused the first-quarter earnings decline are still at work." But Fallon foresees a consumer-driven economic recovery under way by the fourth quarter, leading to a "very positive" start for 1983.

Cautious hopes for the second half of 1982 also are the message from General Electric. Chairman John F. Welch Jr., an old chemical hand, says, "The remainder of 1982 will continue to be challenging. We anticipate very little economic improvement in the second quarter. Our economists are looking for a moderate recovery in the third and fourth quarters fueled by the July tax cut and lower inflation."

For the basic chemical industry, another sandbagging of profits in the second quarter would dash all thought of profits recovery for the year. The hopeful view now looks like a profits drop of 15% for the year on a slim 5% sales increase. Profit margins will continue to suffer, dropping to less than 5% for the first time in recent decades. □

Canadian chemicals slump deepens

Profits of Canada's leading chemical firms continued their decline through first quarter, plunging 87%; sales were down 7.6%

First-quarter results from some of the early-reporting Canadian chemical companies confirm the industry's pessimism about the first half of 1982. Business has gone from bad to worse.

The slump that became so evident in the second half of 1981, particularly in the fourth quarter, became even more severe in the first three months of 1982.

Based on the combined results of the four largest publicly reporting Canadian chemical companies (C-I-L Inc., Celanese Canada, Du Pont Canada, and Union Carbide Canada), profits have been deteriorating for six consecutive quarters through the end of last year. In the fourth quarter of 1981, profits slipped 63.6%, compared to the same period of 1980.

Then, in the first quarter of 1982, profits of the Big Four dropped again. This time, the decline was a staggering 87.2%.

And this time, there was another notable difference. Although profits had dropped in the past several quarters, they were at least based on increased sales. In this year's first quarter, however, combined sales of the Big Four dropped too. And there's little reason to believe the rest of the Canadian chemical industry fared any better.

The combined sales of the Big Four in the first quarter were $793 million (Canadian), down 7.6% from first-quarter 1981. This, coupled with a combined net income of only $6 million, gave the four companies a slender profit margin of 0.7%. That's only a whisper of what they enjoyed in the first quarter of 1981, when their average profit margin was 5.4%. This alone is enough to give Canadian chemical executives sleepless nights. But there is little hope for a quick improvement. Many Canadian economists are revising earlier projections of an upturn in the Canadian economy early in the second half. They now are looking for a U.S. economic recovery during the second half, with a Canadian recovery lagging behind by three to six months.

Canadian chemical leaders apparently agree. Du Pont Canada president J. Edward Newall says, "It now appears likely that no meaningful recovery in business activity will take place before the fall at the earliest." As a result, he expects his company's 1982 earnings to fall well short of their 1981 levels.

W. Norman Kissick, president of Union Carbide Canada, echoes these sentiments. He is "cautiously optimistic" that signs of real economic recovery in the U.S. will begin to appear by the third quarter and that a turnaround in Canadian business will follow.

The reasons behind the dilemma are, of course, not new. They have been around for some time and boil down to a classic cost-price squeeze. Rapidly rising raw material costs, particularly for petrochemicals as a result of the country's controversial energy policies, are putting the squeeze on one end. Recessionary markets, at home and in the international marketplace, are leading to price deterioration and are putting the squeeze on the other end.

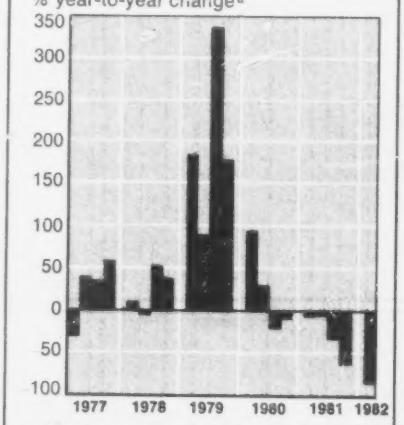
Hardest hit as a result are those companies heavily involved in fibers, plastics, and petrochemicals. At Union Carbide Canada, for instance, although the impact was felt in its downstream consumer and related businesses, the most profound jolt came in the company's plastics and chemical segments.

Du Pont suffered a first-quarter loss on operations of $1.2 million. But at the end of the quarter, it also absorbed an extraordinary after-tax charge of $6.8 million as a result of its plans to shut down its cellulose film plant at Shawinigan, Que. The plant will close July 30.

The only one of the Big Four that pushed sales upward in the first quarter was C-I-L Inc. Sales increased 5.4% to $285 million, primarily because its product line is more diverse than the others. The gains came mostly in explosives, industrial chemicals, fertilizers, and plant-protection products.

Earl Anderson, New York

Combined earnings: worst drop yet



[a] After-tax earnings of four largest publicly reporting Canadian chemical companies—Celanese Canada, C-I-L, Du Pont Canada, and Union Carbide Canada.

Canadian chemical sales and earnings take a beating

$ Millions (Canadian)	First-quarter 1982 Net sales	Change from 1981	Net income	Change from 1981	Profit margin[a] 1982	1981
C-I-L Inc.	$285.2	5.4%	$6.1	−45.0%	2.1%	4.1%
Celanese Canada	79.0	−24.6	0.9	−85.8	1.1	5.9
Du Pont Canada	247.3	−12.6	−1.2[b]	−108.2	−0.5	5.2
Union Carbide Canada	181.7	−9.2	0.2	−98.6	0.1	7.3
TOTAL	$793.2	−7.6%	$6.0	−87.2%	0.7%	5.4%

[a] Net income as percentage of sales. [b] Loss on operations only. An extraordinary charge of $6.8 million (Canadian), representing cost of impending shutdown of a cellulose plant, brings total first-quarter loss to $8.0 million (Canadian).

Major growth ahead for carbon fibers

Against the background of the currently depressed state of world economies and mediocre demand for fibers, the prospect of a 35 to 40% annual growth for a man-made fiber is startling, to say the least. Yet that appears to be the short-term prospect for graphitic, or carbon, fibers.

The prediction comes from David S. Buck, textiles analyst at Laing & Cruickshank, a firm of stockbrokers based in London. "We believe the time has been reached when innovation is passing out of its early evolutionary growth into its major five- to 10-year commercial growth period when maximum profits are earned," Buck surmises.

Others, presumably, share his view as evidenced by the recent spate of decisions to go ahead with installation of new capacity. For instance, Hercules, the largest U.S. producer of carbon fibers, has teamed up with Pêchiney-Ugine-Kuhlmann of France to build a plant near Grenoble. The new company, Société Européen de Fibres et Composites, will be capable of producing 450,000 lb annually when its $12 million unit is completed toward the end of 1983.

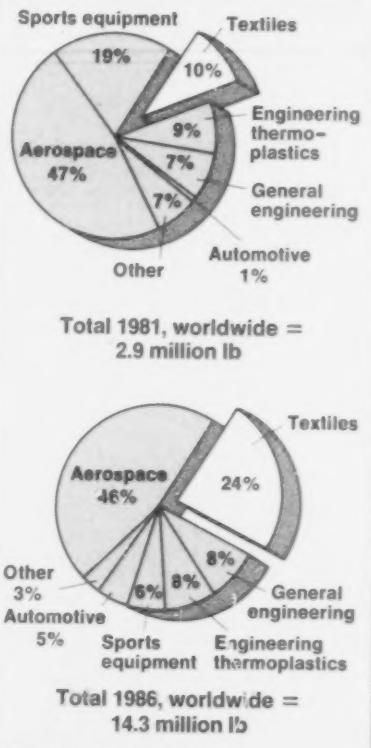
In the U.S. Celanese has started up a 300,000 lb-per-year carbon fiber plant, the company's first entry into production. The new plant is at the company's Celriver plant in Rock Hill, S.C.

And Union Carbide, the U.S leader in high-performance carbon fibers, has made a number of recent moves. It has completed a plant at Greenville, S.C., to produce high-modulus carbon fiber from petroleum pitch. The plant, the first commercial application of this technology, has an annual capacity of 500,000 lb (C&EN, April 5, page 18). The company is starting up another 1 million lb-per-year carbon fiber plant at Greenville that uses the conventional polyacrylonitrile feedstock.

Carbide has canceled out of a planned joint venture with Toray Industries of Japan and Société Nationale Elf Aquitaine of France to make carbon fibers in France.

There are some, however, who voice concern that carbon fiber capacity might be going the way of the other man-made fibers, and that the danger of overcapacity looms large. Such reasoning may have been a factor in the decision of Elf Aquitaine, Toray, and Union Carbide to cancel plans for a three-way partnership that would have made the product, also in France.

Textiles will be fastest growing graphite fibers use



Source: Laing & Cruickshank

Indeed, Courtaulds, the U.K.'s leading carbon fiber maker and an early developer of the material, last week voiced concern about the Hercules-PUK French venture, citing the fact that the new plant's initial capacity will be considerably greater than the 300,000-lb or so annual French domestic demand. At the same time, Courtaulds is increasing capacity of its operation in Coventry, England, from the present 440,000 lb-a-year level to 572,000 lb by year's end.

Carbon fibers still are regarded as specialties. As such, they command a high price, up to $30 per lb and higher, depending on grade, type, and volume sold. But tabs have come down. Price to the consumer has been cut more than half during the past 10 years. The steepest downturn, between 20 and 30%, occurred in the past five years, despite inflation and rising energy costs, and Buck foresees a further halving in the coming five years as use expands.

The first step in production of carbon fiber involves oxidation of a special acrylic fiber. Other precursors, such as rayon or pitch, may be used. Next follows a carbonization step in which the oxidized fiber is heated to between 1000 and 1500 °C in an inert atmosphere.

Composites made from carbon fibers are much lighter than metals without sacrificing strength or stiffness. Consequently, they result in considerable weight saving, an important element in the aerospace and aircraft industry, and, to an increasing extent, in automobiles.

"The field of electrical thermoplastics is likely to develop into a sizable market, because the conductive properties of carbon fiber composites can be used for electrostatic dissipation," Buck notes. "Meanwhile, development is proceeding rapidly in the area of flameproof textile products, and development of nuclear, biological, and chemical protective suits is a high military priority."

The U.S. is the biggest market for carbon fibers. Consumption last year was about two thirds of the noncommunist world total of nearly 3 million lb. Buck believes that this position will be maintained in the years immediately ahead, and that U.S. use will account for 60% of the world total in 1986, which, by then, probably will exceed 14 billion lb. However, the annual growth rate of sales in Japan and Western Europe combined (43%) will be greater between 1981 and 1986 than for the U.S. (34%). □

Consumption of graphite fibers to continue to expand

Thousands of lb	1979	1980	1981	1986	Annual change 1979–81	Annual change 1981–86
U.S.	660	1276	1958	8580	72.2%	34.4%
Japan, Western Europe	594	792	968	5720	27.7	42.7
TOTAL	1254	2068	2926	14,300	52.8%	37.3%

Source: Laing & Cruickshank